

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/520,777 Confirmation No.: Not assigned
Applicant: : Wang et al.
Filed: : January 7, 2005
Group Art Unit : Not assigned
Examiner: : Not assigned
Title: : Monitoring Signal-to-Noise Ratio in X-ray Diffraction Data
Docket No. : 37-03
Customer No. : 23713

INFORMATION DISCLOSURE STATEMENT

MAIL STOP AMENDMENT
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Examiner is respectfully requested to consider the references, listed on the attached Patent and Trademark Office form PTO-1449, which may qualify as prior art. Copies of non-patent literature documents are enclosed.

References known to the applicants have been listed on PTO-1449. That information is cited in a spirit of forthrightness and cooperation to enable the applicants to obtain that measure of protection for the invention to which there is entitlement. However, no representation is made that the listed art actually qualifies as prior art under the patent statute and the mere use of PTO-1449 is not an admission that all listed references are prior art. No representation is made that applicants know of the best art.

It is believed no fee is required for this submission. If this is incorrect, please deduct the appropriate fee from deposit account 07-1969.

Respectfully submitted,



Gary B. Chapman
Reg. No. 51,279

GREENLEE, WINNER AND SULLIVAN, P.C.
4875 Pearl East Circle, Suite 200, Boulder, CO 80301
Telephone: (303) 499-8080; Facsimile: (303) 499-8089
Attorney Docket No. 37-03
lem:August 12, 2005

Substitute for form 1449/PTO, based on O/SB/08A and 08B INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	10/520,777
	Filing Date	01/07/2005
	First Named Inventor	Wang et al.
	Art Unit	Not assigned
	Examiner Name	Not assigned
	Attorney Docket Number	37-03

GWS 8/12/2005

U.S. PATENT DOCUMENTS

Examiner Initial*	Cite No. ¹	Document Number (US-)	Publication Date (MM-DD-YYYY)	Name	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear (or entire document unless noted otherwise)
		6,438,204 B1	08/20/2002	Dzakula	
		3,714,426	1/30/1973	Wolfel et al.	
		3,609,356	10/28/1971	Schwuitke et al.	
		2002/0116133	08/22/2002	Terwilliger	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No. ¹	Foreign Patent Document Number (include WIPO country code)	Publication Date (MM-DD-YYYY)	Name	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear (or entire document unless noted otherwise)	T ²
-------------------	-----------------------	--	-------------------------------	------	---	----------------

NON-PATENT LITERATURE DOCUMENTS

Examiner Initial*	Cite No. ¹	REFERENCE Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Bernstein et al. (1977) "The Protein Data Bank: A Computer-based Archival File for Macromolecular Structures," <i>J. Mol. Biol.</i> 112:535-542	
		Blow et al. (1959) "The Treatment of Errors in the Isomorphous Replacement Method," <i>Acta. Cryst.</i> 12:794-802	
		Blundell & Johnson (1976) "Anomalous Scattering," In: <i>Protein Crystallography</i> , New York, Academic Press, pp.165-182	
		Dauter et al. (Jan. 2002) "Jolly SAD," <i>Acta Cryst.</i> D58:494-506	
		Dauter et al. (1999) "Can Anomalous Signal of Sulfur Become a Tool for Solving Protein Crystal Structures?" <i>J. Mol. Biol.</i> 289:83-92	
		Dickerson et al. (1961) "The Crystal Structure of Myoglobin: Phase Determination to a Resolution of 2Å by the Method of Isomorphous Replacement," <i>Acta. Cryst.</i> 14:1188-1195	
		Diederichs et al. (1997) "Improved <i>r</i> -Factors for Diffraction Data Analysis in Macromolecular Crystallography," <i>Nature Struct. Biol.</i> 4:269-275	
		Drenth, J. (1994) <i>Principles of Protein X-ray Crystallography</i> , New York, Springer-Verlag, pp. 199-210	
		Fu et al. (2000) "Scaling Bio-Macromolecular Crystal Diffraction Data Using 3-Dimensional Models with Free-R" Am. Crystallogr. Assoc. Annual Meeting, St. Paul, Minnesota, USA Abstract P066 (W0110)	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional).

²Applicant is to place a check mark here or "x" if English language Translation is attached.

Substitute for form 1449/PTO, based on O/SB/08A and 08B INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	10/520,777
	Filing Date	01/07/2005
	First Named Inventor	Wang et al.
	Art Unit	Not assigned
	Examiner Name	Not assigned
	Attorney Docket Number	37-03

GWS 8/12/2005

	Fu et al. (March 2004) "Monitoring the Anomalous Scattering Signal and Noise Levels in X-ray Diffraction of Crystals," <i>Acta. Cryst.</i> D60:499-506	
	Gordon et al. (Sept. 2001) "The C ₁ Subunit of α -Crustacyanin: The <i>de novo</i> Phasing of the Crystal Structure of a 40 kDa Homodimeric Protein Using The Anomalous Scattering from S Atoms Combined with Direct Methods," <i>Acta. Cryst.</i> D57:1230-1237	
	Hendrickson, W.A. (1985) "Analysis of Protein Structure from Diffraction Measurement at Multiple Wavelengths," <i>Trans. Am. Crystallogr. Assoc.</i> 21:11-21	
	Hendrickson, et al. (1981) "Structure of the Hydrophobic Protein Crambin Determined Directly from the Anomalous Scattering of Sulphur," <i>Nature</i> 290:107-113	
	Howell et al. (1992) Identification of Heavy-atom Derivatives by Normal Probability Methods," <i>J. Appl. Cryst.</i> 25:81-86	
	Kleywegt, G.J. (2000) "Validation of Protein Crystal Structures," <i>Acta. Cryst.</i> D56:249-265	
	Ladd et al. (1994) "Anomalous Scattering," In; <i>Structure Determination by X-Ray Crystallography</i> 3 rd ed. New York: Plenum Press, pp. 335-348	
	Li et al. (Dec. 2002) "Crystal Structure of the Cytoskeleton-Associated Protein Glycine-rich (CAP-Gly) Domain," <i>J. Biol. Chem.</i> 277:48596-48601	
	Lin et al. (2000) "AutoDep: A Web-Based System for Deposition and Validation of Macromolecular Structural Information," <i>Acta. Cryst.</i> D56:828-841	
	Liu et al. (2000) "Structure of the Ca ²⁺ -Regulated Photoprotein Obelin at 1.7 Å Resolution Determined Directly from its Sulfur Substructure," <i>Protein Sci.</i> 9:2085-2093	
	Mathews, B.W. (1966) "The Extension of the Isomorphous Replacement Method to Include Anomalous Scattering Measurements," <i>Acta Cryst.</i> 20:82-86	
	McRee, D.E. (1992) "A Visual Protein Crystallographic Software System for X11/Xview," <i>J. Mol. Graph.</i> 10:44-46	
	North, A.C.T. (1965) "The Combination of Isomorphous Replacement and Anomalous Scattering Data in Phase Determination of Non-Centrosymmetric Reflexions," <i>Acta. Cryst.</i> 18:212-216	
	Otwinowski et al. (1997) "Processing of X-Ray Diffraction Data Collected in Oscillation Mode," <i>Methods Enzymol.</i> 276:307-326	
	Popov et al. (Aug. 2003) "Choice of Data-Collection Parameters Based on Statistic Modeling," <i>Acta. Cryst.</i> D59:1145-1153	
	Ramagopal et al. (June 2003) "Phasing on Anomalous Signal of Sulfurs: What is the Limit," <i>Acta. Cryst.</i> D59:1020-1027	
	Shen et al. (July 2003) "Anomalous Difference Signal in Protein Crystals," <i>Acta Cryst.</i> A59:371-373	
	Stajich et al. (Oct. 2002) "The Bioperl Toolkit: Perl Modules for the Life Sciences," <i>Genome Res.</i> 12(10):1611-1618	
	Stout et al. (1968) "Heavy-Atom Methods," In; <i>X-Ray Structure Determination. A Practical Guide</i> , London: Macmillan, pp.270-299	
	Wang, B.C. (1985) "Resolution of Phase Ambiguity in Macromolecular Crystallography," <i>Methods Enzymol.</i> 115:90-112	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional).

²Applicant is to place a check mark here or "x" if English language Translation is attached.

Substitute for form 1449/PTO, based on O/SB/08A and 08B

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

Application Number	10/520,777
Filing Date	01/07/2005
First Named Inventor	Wang et al.
Art Unit	Not assigned
Examiner Name	Not assigned
Attorney Docket Number	37-03

GWS 8/12/2005

	Weiss, M.S. (April 2001) "Global Indicators of X-Ray Data Quality," <i>J. Appl. Cryst.</i> 34:130-135	
	Weiss et al. (1997) "On the Use of the Merging <i>R</i> Factor as a Quality Indicator for X-Ray Data," <i>J. Appl. Cryst.</i> 30:203-205	
	Weiss et al. (1998) "Two Non-Proline <i>Cis</i> Peptide Bonds may be Important for Factor XIII Function," <i>FEBS Lett.</i> 423:291-296	
	Wu et al. (1999) P12.02.023 "Direct Determination of Crystal Structure of Human Ferro-Chelatase Using [2Fe-2S] Anomalous Scattering Signal from In-House Data and Solvent Flattening" <i>Acta. Cryst.</i> A55(Sup.):255	
	Wu et al. (Feb. 2001) "The 2.0 Å Structure of Human Ferrochelataase, the Terminal Enzyme of Heme Biosynthesis," <i>Nature Struct. Biol.</i> 8:156-160	

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional).

²Applicant is to place a check mark here or "x" if English language Translation is attached.

CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)

Attorney Docket No.: 37-03

Application No. : 10/520,777
Applicant: : Wang et al.
Filed: : January 7, 2005
For: : Monitoring Signal-to-Noise Ratio in X-ray Diffraction Data

I hereby certify that the following correspondence, along with any other document referred to as being attached or enclosed,:

1. **Information Disclosure Statement – 1 page**
2. **Form 1449 – 3 pages**
3. **34 references**
4. **Certificate of Mailing – 1 page**
5. **Return Postcard**

Is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to:

Commissioner for Patents,
PO Box 1450
Alexandria, VA 22313-1450

On August 12, 2005

LEA MURRAY

(Typed or Printed Name of Person Mailing Correspondence)



(Signature of Person Mailing Correspondence)

EV 663 226 452 US

("Express Mail" Mailing Label Number)